This article investigates the relationship between cultural globalization and economic growth for the Portuguese experience for the period 1995-2011. In this research we apply a static and dynamic panel data. The initial GDP per capita is negatively correlated with economic growth. This result is according to theoretical and empirical studies. This paper shows that international trade and cultural globalization promote the economic growth. As we expected the inflation has a negative impact on economic growth.

Keywords: Portugal, Panel data, Convergence and Economic growth.
JEL Classifications: C23, F21, O4

Introduction
Over the last few years much has been written about globalization. Indeed, the social sciences have several ways to evaluate this phenomenon. In general, globalization is often analyzed in terms of costs versus benefits. There are several authors who argue that globalization promotes economic growth (Celik and Basdas, 2010; Dreher, 2006; Leitão 2012b). We find in the literature authors who

This study is organized as follows: section 2 presents the literature review; section 3 explains the methodology and economic model; section 4 shows the empirical results and the final section provides conclusions.

**Literature Review**

In this section we present a survey of the theoretical models of economic growth and their relationship with globalization. The literature (Dreher, 2006; Leitão 2012b) shows that globalization promotes the economic growth. Some authors as in Beer and Boswell (2001), Dollar (1992) used openness trade and foreign direct to measures globalization. According to growth endogenous models these proxies are explanatory variables of economic growth. Beer and Boswell (2001) and Mah (2002), Goldberg and Pavcnik, (2007) consider that globalization are positively correlated with inequality. Dreher (2006), Leitão (2012b), and Celik and Basdas (2010) consider that there is a correlation between globalization and economic growth. Dreher (2006) demonstrates that there are arguments to consider a causal direction within globalization and economic growth, i.e these proxies reinforce between them. The globalization more suitable indicators have been proposed by Kearney (2003) and the KOF index (Dreher 2006). The index of globalization (KOF) proposed by Dreher,
(2006) represents three dimension of globalization: economic, social and political (see Dreher, 2006; Dreher and Gaston, 2008). In this research we used only the cultural globalization. This index is interpreted as the domination of American products (Dreher, 2006). The data on cultural proximity are the number of McDonald's restaurants.

There is some robust evidence that international trade is positively correlated with economic growth (Grossman and Helpman 1991, Rebelo 1991, Frankel and Romer 1996). However some authors as in Lai et al. (2006), and Onaran and Stockhammer (2008) found a negative association between openess trade and growth.


Leitão (2012a) finds a positive correlation between globalization and foreign direct investment. The author examines the link between foreign direct investment and globalization for OECD countries for the period 1990 to 2008. Leitão (2012a) applies a panel data (fixed efects and GMM system estimator). The results show that market size, openess trade and globalization have a positive impact on FDI.

The empirical studies (Padovano and Galli, 2002, Koch et al., 2005, Lee and Gordon, 2005) demonstrate that a higher taxes system cause a decrease on economic growth. On the other hand fiscal policy can be understood as an indicator control or adjusted to the government spending and the inflation.

**Econometric Model**

The dependent variable is the real GDP per capital of Portugal for the period 1995 and 2011. The data are taken from World Bank. The
partners selected are European countries (EU-27). This section presents the methodological approach model and model specification using panel data. In static panel data (OLS, fixed effects, and random effects estimators) are used in this type of study. The Random effects were excluded because our sample is not random. The Hausman test rejects the null hypothesis RE versus FE. We also introduced Probit model to evaluate the expected signs. With dynamic panel data we used GMM-system estimator. This estimator permits the researchers to solve the problems of serial correlation and endogeneity. These econometric problems were resolved by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998) who developed the first–differenced GMM (GMM-DIF) estimator and the GMM system (GMM-SYS) estimator. We introduced the criterion of Windmeijer (2005).

The paper uses the following explanatory variables in logs:

- GDP: It is the initial level of GDP per capita. Barro (1991), and Dreher (2006) considered a negative correlation between economic growth and the initial level of GDP per capita, i.e. there is economic convergence. The income measure selected in this research is the Gross Domestic Product per capita, expressed in constant 2000 US$ and was collected from World Bank.

- KOFCULT: This is cultural globalization proposed by Dreher (2006), and Dreher and Gaston (2008). The data on cultural proximity are the number of McDonald’s restaurants per capita. The expected effect on growth is positive. Dreher (2006), and Leitão (2012b) found a positive correlation between globalization and economic growth.

- TRADE: This is international trade (exports plus imports between Portugal and trade partner). The data for trade were collected from National Institute of Statistics. According to previous studies (Grossman and Helpman, 1991, and Rebelo, 1991), a positive sign
is expected for our model.

- FDI: It is the net inflows of investment. The data are collected from World Bank. The studies of Kai and Hamori (2009), Badinger and Tondl (2002), and Onaran, (2007) find a positive sign. However, De Mello, (1999) and Ayanwale, (2007) defend a negative impact of FDI on growth.

- INF (Inflation): this is measured by the consumer price index and reflects the annual percentage change in the cost to the average of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. According to Gillman and Kejak (2005), and Fountas et al. (2006) a negative sign should be expected.

The econometric model on growth takes the following representation:

\[
\text{LogGrowth}_t = \beta_0 + \beta_1 \text{Log}(GDP)_t + \beta_2 \text{Log}(KOFCULT)_t + \beta_3 \text{Log}(TRADE)_t + \\
\beta_4 \text{Log}(FDI)_t + \beta_5 \text{Log}(INF)_t + \delta t + \eta_i + \epsilon_t
\]

Where \(\text{Growth}\) is the real GDP per capita; \(X\) is a set of explanatory variables. All variables are in the logarithm form; \(\eta_i\) is the unobserved time-invariant specific effects; \(\delta\) captures a common deterministic trend; \(\epsilon_t\) is a random disturbance assumed to be normal, and identically distributed (IID) with \(E(\epsilon_t) = 0; \ Var(\epsilon_t) = \sigma^2 > 0\).

The model can be rewritten in the following dynamic representation:

\[
\text{LogGrowth}_t = \rho \text{LogGrowth}_{t-1} + \beta_1 \text{Log}(GDP)_t + \beta_2 \text{Log}(KOFCULT)_t + \\
\beta_3 \text{Log}(TRADE)_t + \beta_4 \text{Log}(FDI)_t + \beta_5 \text{Log}(INF)_t + \delta t + \eta_i + \epsilon_t
\]

**Empirical Results**

Table 1 presents the estimates of fixed effects model. The general performance of the model is satisfactory. According to the results, the variables have the expected signs and level of significance.

The variable of initial of GDP per capita (LogGDP) is statistically significant at 1% level, indicating that there is an economic convergence (Barro, 1991; Dreher, 2006). We expected that cultural
globalization (LogKOFCULT) has a positive sign on the economic growth. The result is according to Dreher (2006), and Leitão (2012b). The coefficient of foreign direct investment (LogFDI) presents a positive correlation. This result is according to previous studies (Kai and Hamori 2009; Badinger and Tondl 2002, and Onaran, 2007) According to empirical literature (Grossman and Helpman, 1991; Rebelo, 1991, and Leitão 2012b) the coefficient of international trade would have a positive impact on the growth. Our result indicates that international trade promotes the economic growth.

The variable inflation (LogINF) finds a negative sign, as we expected and corresponds to the empirical works as in Gillman and Kejak (2005), and Fountas et al. (2006).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Fixed Effects: Dependent Variable LogGrowth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td>Coefficient</td>
</tr>
<tr>
<td>LogGDP</td>
<td>-0.66 (-11.58)***</td>
</tr>
<tr>
<td>LogKOFCULT</td>
<td>0.09 (5.90)***</td>
</tr>
<tr>
<td>LogTRADE</td>
<td>0.17 (16.65)***</td>
</tr>
<tr>
<td>LogFDI</td>
<td>0.02 (4.50)***</td>
</tr>
<tr>
<td>LogINF</td>
<td>-0.01 (-1.87)*</td>
</tr>
<tr>
<td>C</td>
<td>0.98 (9.90)***</td>
</tr>
<tr>
<td>Observations</td>
<td>220</td>
</tr>
<tr>
<td>Ad. R-squared</td>
<td>0.81</td>
</tr>
</tbody>
</table>

*Statistics (heteroskedasticity corrected) are in brackets.***/* – statistically significant, respectively at the 1%, 10% levels.

In table 2 we can observe the relationship between cultural globalization and economic growth using a Probit model. The variables are significant at 1% (LogGDP, LogKOFCULT,
LogTRADE, and LogINF), with exception the coefficient foreign direct investment (LogFDI), and inflation (LogINF).

Table 2

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>Expted Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>LogGDP</td>
<td>-21.47 (-18.25)***</td>
<td>(-)</td>
</tr>
<tr>
<td>LogKOFCULT</td>
<td>13.94 (14.05)***</td>
<td>(+)</td>
</tr>
<tr>
<td>LogTRADE</td>
<td>8.99 (29.91)***</td>
<td>(+)</td>
</tr>
<tr>
<td>LogFDI</td>
<td>0.02 (0.19)</td>
<td>(+)</td>
</tr>
<tr>
<td>LogINF</td>
<td>-0.14 (-0.36)</td>
<td>(-)</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-376.15***</td>
<td></td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.37</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>220</td>
<td></td>
</tr>
</tbody>
</table>

* T-Statistics (heteroskedasticity corrected) are in brackets.
***/ – statistically significant, respectively at the 1%, level.

The initial GDP per capita (LogGDP) presents a negative sign. This result is according to the hypothesis formulate. A positive effect of cultural globalization (KOFCULT) on economic growth was expected and the results confirm this. The variable of bilateral trade (LogTRADE) has also the expected sign. The coefficient of inflation (LogINF) is negative with significance.

Table 3 shows the results using a GMM-System estimator with orthogonal transformation data. The equation presents consistent estimates, with no serial correlation for the GMM-System estimator (AR2). The specification Sargan test shows that there are no problems with the validity of the instrument used.
## Table 3

**GMM-System: Dependent Variable LogGrowth**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>Expct Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>LogGrowth(_{t-1})</td>
<td>0.98 (23.21)*****</td>
<td>(+)</td>
</tr>
<tr>
<td>LogGDP</td>
<td>-0.03 (-3.37)*****</td>
<td>(-)</td>
</tr>
<tr>
<td>LogKOFCULT</td>
<td>0.02 (5.68)*****</td>
<td>(+)</td>
</tr>
<tr>
<td>LogTRADE</td>
<td>0.03 (2.51)**</td>
<td>(+)</td>
</tr>
<tr>
<td>LogFDI</td>
<td>0.04 (4.15)*****</td>
<td>(+)</td>
</tr>
<tr>
<td>LogINF</td>
<td>-0.05 (-3.46)*****</td>
<td>(-)</td>
</tr>
<tr>
<td>C</td>
<td>0.05(0.99)</td>
<td></td>
</tr>
</tbody>
</table>

Observations: 179  
Arellano-Bond test for AR(2): 0.60  
Sargan Test: 1.00  

The null hypothesis that each coefficient is equal to zero is tested using one-step robust standard error. T-statistics (heteroskedasticity corrected) are in round brackets. P-values are in square brackets; ***/** - statistically significant at the 1 and 5 per cent level. Ar(2) is tests for second–order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null hypothesis of no serial correlation (based on the efficient two-step GMM estimator). The Sargan test addresses the over-identifying restrictions, asymptotically distributed X\(^2\) under the null of the instruments' validity (with the two-step estimator).

We used the criterion of Windmeijer (2005) to small correction. As shows in table 3, all explanatory variables are statistically significant (LogGrowth\(_{t-1}\) at 1%, LogGDP at 1%, LogKOFCULT at 1%, LogTRADE at 5%, LogFDI at 1%, and LogINF at 1% level significant).

As expected the lagged dependent variable (LogGrowth\(_{t-1}\)) has a significant and positive effect. So the past changes in economic growth values have a significant impact on the current variation in the same index.

The coefficient of initial GDP per capita (LogGDP) presents a negative sign. The variable cultural globalization (LogKOFCULT)
presents a positive sign, which confirms that globalization enhances economic growth. For the proxy \( \log \text{TRADE} \) the expected sign is positive and this is confirmed by the estimator.

Inflation has a negative coefficient and is statically significant. This negative coefficient is predicted by previous studies (Gillman and Kejak, 2005; and Fountas et al., 2006). Thus, we can conclude that inflation discourages economic growth.

Conclusions

This paper investigates the relationship between cultural globalization and economic growth for the period 1990-2011 between Portugal and European Countries. There appears to be a positive and statistically significant impact of cultural globalization on economic growth. The general performances of the models are satisfactory. The estimates are strongly statistically significant. This study tests the impact of cultural globalization in Portugal. The bilateral trade expresses the openness trade. Our findings suggest that international trade promotes economic growth. This result is according to Grossman and Helpman (1991), Rebelo (1991), and Leitão (2012b).

In relationships the foreign direct investment with GMM-system estimator this variable presents a positive impact on economic growth. The studies of Kai and Hamori (2009), Badinger and Tondl (2002), and Onaran, (2007) find a positive effect. However, De Mello, (1999) and Ayanwale, (2007) consider a negative impact of FDI on growth. The coefficient inflation reveals a negative association with economic growth. The empirical studies of Gillman and Kejak (2005), and Fountas et al. (2006) also found a negative effect on growth. We can infer that inflation discourage the growth.

This study contributes in several ways. Firstly, the paper examines the impact of cultural globalization and economic growth. Secondly, the results allow us to view cultural globalization as a vehicle that promotes to increase of economic growth.
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